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EXAMINER	
ZETTL, MARY E	

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2875	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/567,234	YONEDA ET AL.	
	Examiner	Art Unit	
	MARY ZETTL	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7-9,11-14,16-19 and 23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,7-9,11-14,16-19 and 23* is/are rejected.

7)☐ Claim(s) *2* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 February 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 3-4, 11, 13, 16, 18, 19, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneda et al. (US 2003/0193817 A1) in view of Conzola et al. (US 5,185,638 A).

Regarding claim 1, Yoneda et al. teaches a line light irradiation device comprising: multiple light emitting parts (7a; Figure 13) each of which is provided with an optical fiber band (7a) and a lens (9) wherein the optical fiber band comprises a light irradiating part formed by at 9; Figure 13 and corresponding to the straight line, 6, shown in Figure 15, through which the light emerges) or in multiple straight lines and a binding part (outer surface of 7) formed by binding light introducing end portions of the optical fibers and portions of the multiple optical fibers between the light irradiating part and the binding part are formed as a sheet form (sheet form, according to the definition of sheet in Merriam Webster's Collegiate dictionary, as a portion of something that is thin in comparison to its length, Figure 13) and the lens is arranged to extend along a direction of the straight line in front of the light irradiating part and that irradiate line light that converges into the straight line; multiple light sources (5A, 5B) that introduce light into the multiple optical fibers; and a holding body (6) that is arranged to face an object

on which the straight line light is to be irradiated (emerging through 6a; Figure 15), on which a monitoring bore (hollow portion through 6) is arranged to penetrate in order to monitor the object (hollow portion penetrates through 6 such that light from the optical fibers illuminates the object being inspected), the holding body holding the light emitting parts (7a) so that each optical axis face of the line light irradiated from each of the light emitting parts crosses on a predetermined straight line (out through 6a), wherein the light emitting parts are of a same form (multiple light emitting parts corresponding to the multiple light fibers) and the lengths are made to be different (Figure 13) and the multiple light emitting parts (7a) are arranged serially along the above mentioned direction of the straight line (Figure 13).

Yoneda et al. does not disclose expressly a columnar lens being arranged in pairs.

Conzola et al. teaches an optical inspection system including a columnar lens being arranged in pairs (30 and 31).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Yoneda et al. such that a columnar lens as taught by Conzola et al. was tried for the purpose of directing and outputting the light in the manner desired.

Yoneda et al. does not disclose expressly two identical fiber optic bands.

Conzola et al. further teaches two identical fiber optic bands (one item 20 on the left side in Figure 9 and one in the identical item on the right side) being mounted with their front and back sides turned upside down (orientation of item 20 arbitrarily taken to

be upside down) in the holding body so that the location of each adjacent binding part (20; Figure 9) is different (item 20 on left side in a different location than item 20 on the right side; Figure 9).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Yoneda et al. such that two identical fiber optic bands as taught by Conzola et al. were provided for the purpose of increasing the light output by providing more light output sources and furthermore it would have been obvious to one of ordinary skill in the art to have tried orienting the bands as taught by Conzola et al. since such orientation is space-efficient.

Yondeda et al. and Conzola et al. do not teach the binding part being located to deviate to either one of two directions with respect to the center line of the light irradiating part.

Windross teaches a fiber optic illuminating device including a columnar lens (20), wherein predetermined lengths of the multiple optical fibers (14) of the optical fiber band (Figure 1) are made to be different so that the binding part (12; fiber optic cable serves to bind individual fiber optics together) is located to deviate to either one of two directions with respect to a center line of the light irradiating part (around 18).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Yoneda et al. and Conzola et al. such that the binding part was of the type that is located to deviate from either one of two directions with respect to the center line of the light irradiating part as taught by Windross such that the location of the binding part was no longer restricted to the center

position and is located in a position that saves space and allows easy access to the light source.

Yoneda, Conzola, and Windross do not teach multiple light sources being arranged along the direction of the straight line on the holding body. Shifting the location of an element would not have modified the operation of the device. In re Japkse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950). It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the light sources of Yoneda, Conzola, and Windross such that they were arranged along the direction of the straight line on the holding body, since it has been held that a mere rearrangement of an element without modification of the operation of the device involves only routine skill in the art.

One would have been motivated to rearrange the light sources for the purpose of providing an orderly assembly of light sources that eased maintenance and replacement processes.

Regarding claim 3, Yoneda does not disclose expessly a columnar lens.

Conzola et al. teaches a columnar lens (one of the plurality of columnar lens; col. 8, line 55) being arranged generally on a straight line viewed from the above-mentioned direction of the line (see Figure 12).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Yoneda such that a columnar

lens as taught by Conzola et al. was utilized in order to create the desired direction and type of light output.

Regarding claim 4, Yoneda teaches a pair of pinching plates (paragraph 71, item 80),a the pinching plates hold the light leading out end portions of the multiple fibers by pinching them between the pair of pinching plates (paragraph 71).

Regarding claim 11, Yoneda teaches each length of the light emitting part being identical (components associated with 6A are identical to those associated with 6B).

Regarding claim 13, Yoneda et al. teach a line light irradiation device comprising: a light source (5A, 5B; Abstract); multiple light emitting parts (7a), each of which is provided with a light irradiating part where multiple optical fibers (7a) with light introducing end portions are bundled and aligned with the light source (Figure 13), and arranged in a line with light leading out end portions of the respective multiple optical fibers for forming a straight line of a predetermined width (Figure 15), and portions of the multiple optical fibers between the light introducing end portions and the light leading out portions are formed as a sheet form (Figure 13) a plurality of lens (9; Figure 13), each arranged to extend along a direction of a respective line in front of each of the light irradiating parts, and to converge light onto a straight line (paragraph 20); wherein the light emitting parts are of the same form (Figure 13); a holding body (col. 8, lines 32-36) that is arranged to align with an object on which line light is to be irradiated,

including a monitoring bore (hollow portion of 6; Figure 13) arranged to enable a monitoring of the object (by allowing a passage for the light traveling means), the holding body holding the light emitting parts (Figure 13) so that each optical axis of light irradiated from each of the light emitting parts crosses at a predetermined straight line, and binding parts (outer surface of 7) that are formed by binding each of the respective light introducing end portions of the optical fibers wherein the lengths of the optical fibers are different (Figure 13); the multiple light emitting parts are arranged serially along the above mentioned direction of the straight line (Figure 13); and the optical fibers being arranged in a substantially cylindrical form (within 7).

Yoneda et al. does not disclose expressly the lens being of the columnar lens type.

Conzola et al. teaches an optical inspection system including a columnar lens being arranged in pairs (30 and 31).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Yoneda et al. such that a columnar lens as taught by Conzola et al. was tried for the purpose of directing and outputting the light in the manner desired.

Yoneda et al. does not disclose expressly the respective adjacent binding parts being configured to alternate in deviation.

Conzola et al. teaches the respective adjacent binding parts (outer surface of 20) being configured to alternate in deviation (leaned in different directions; Figure 9) to enable adjacent optical fibers to spread into linear arrays that are turned upside down

from each other to provide a stacked compact configuration (see Figure 10; wherein optical fibers, 25 are considered to be stacked on top of each other and arbitrarily oriented upside down from each other).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Yoneda et al. such that the adjacent binding parts were configured to alternate in deviation as taught by Conzola et al. such that the apparatus met the desired size and shape requirements of the respective application.

Yoneda et al. and Conzola et al. do not teach the binding part being located to deviate to either one of two directions with respect to the center line of the light irradiating part.

Windross teaches a fiber optic illuminating device including a columnar lens (20), wherein predetermined lengths of the multiple optical fibers (14) of the optical fiber band (Figure 1) are made to be different so that the binding part (12; fiber optic cable serves to bind individual fiber optics together) is located to deviate to either one of two directions with respect to a center line of the light irradiating part (around 18).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Yoneda et al. and Conzola et al. such that the binding part was of the type that is located to deviate from either one of two directions with respect to the center line of the light irradiating part as taught by Windross such that the location of the binding part was no longer restricted to the center

position and is located in a position that saves space and allows easy access to the light source.

Yoneda (Abstract) and Conzola teach multiple light sources (col. 4, lines 58-59).

Yoneda, Conzola, and Windross do not specify multiple light sources being arranged along the direction of the straight line on the holding body. Shifting the location of an element would not have modified the operation of the device. In re Japkse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950).

Regarding claim 16, Yoneda et al. does not disclose a cylindrical rod lens.

Conzola et al. teach a cylindrical rod lens (Figure 11; col. 8, line 55) aligned with each of the light emitting ends of the optical fibers of each of the multiple light emitting parts to form the line of light on the predetermined surface.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Yoneda et al. by providing a cylindrical rod lens as taught by Conzola et al. for the purpose of creating the desired directional qualities of output light.

Regarding claim 18, Yoneda teaches the holding body (6) having a rectangular body with a plurality of separate light source (5A, 5B), one light source for each multiple light emitting part (Abstract), at least two light emitting parts are connected opposite ends of the rectangular body (6) and the light leading out end portions are positioned to extend parallel to the respective rectangular body (7a; Figure 13).

Regarding claim 19, Yoneda does not disclose expressly a bracket.

Conzola et al. teaches the holding body (mechanical body) including a bracket member (spring loaded pivoting bracket; col. 8, lines 34-36) mounting at least one of the binding parts, the bracket member being pivotably mounted in the holding body to enable a rotational movement of the mounted binding part to move the line of light of the mounted binding part from a position exterior of the rectangular body (i.e. light output exterior to the holding body will be moved; col. 8, lines 31-49).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Yoneda such that a bracket as taught by Conzola was provided for providing the desired holding and movement characteristics of components.

Regarding claim 23, Yoneda, Conzola et al, and Windross do not disclose expressly the parts being modular.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to the components of Yoneda, Conzola et al. and Windross modular, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

2. Claims 7, 14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneda et al. (US 2003/0193817 A1), Conzola et al. (US 5,185,638 A), and Windross (US 5,222,794) as applied to claims 1 and 13 above and further in view of Biard (US 5,148,303 A).

Regarding claims 7, 14, and 17, Yoneda teaches an LED light source (5A, 5B; Abstract).

Yoneda et al., Conzola et al., and Windross do not disclose expressly the current associated with the LED.

Biard et al. teaches a fiber optic usingLEDs with current flow greater than or equal to 200mA (col. 5, Table 1).

At the time the invention was made, it would have been further obvious to one of ordinary skill in the art to have utilized a power LED in the invention of Yoneda et al., Conzola et al. and Windross such as that the current associated with the LED was 200 as taught by Biard et al. so that the desired brightness of light output was achieved.

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneda et al. (US 2003/0193817 A1), Conzola et al. (US 5,185,638 A) and Windross (US 5,222,794) as applied to claim 1 above and further in view of Marcus et al. (US 5,596,409 A).

Regarding claim 8, Yoneda et al., Conzola et al. and Windross do not disclose expressly the irradiation device having the capability of varying the distance between the light irradiating part and the columnar lens being adjustable.

Marcus et al. teach a device for measuring physical properties of an object, the device including a lens and optical fibers; wherein the distance between the lens and the optical fibers is variable (col. 19, lines 14-27).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Conzola et al. and Windross such that the distance between the optical fibers and the lens is variable in order to increase the range of object feature sizes and the size of the surface area that is analyzed.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneda et al. (US 2003/0193817 A1), Conzola et al. (US 5,185,638 A), and Windross (US 5,222,794) as applied to claim 1 above and further in view of Wack et al. (US 6,782,337 B2).

Regarding claim 9, Conzola et al. appears to illustrate (Figure 9) means for rotating the device, however neither Yoneda et al., Conzola et al., nor Windross discuss such rotational means expressly.

Wack et al. teach a device for monitoring defects including a light source that rotates around a rotational axis (col. 37, lines 40-45) and the rotational angle is at a fixed position.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Yoneda et al. Conzola et al. and

Windross such that the light source was rotatable as taught by Wack et al. as a means for detecting more defects by providing more viewing angles.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneda et al. (US 2003/0193817 A1), Conzola et al. (US 5,185,638 A) and Windross (US 5,222,794) as applied to claim 1 above and further in view of Poffenbarger (US 5,953,113 A).

Regarding claim 12, Yoneda et al. (US 2003/0193817 A1), Conzola et al., and Windross not disclose expressly a light source being arranged for each of the light irradiating parts individually.

Poffenbarger teaches a device for detecting defects including fiber optics with individual LEDs (col. 3, lines 54-56).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Conzola et al. and Windross such that individual light sources were provided as taught by Poffenbarger in order to increase the brightness of output illumination.

Response to Arguments

6. On page 11, the applicant has claimed that the prior art fails to teach a bore. The examiner notes that bore is defined by Merriam Webster's Dictionary (http://www.merriam-webster.com/dictionary/bore[2]) as follows:

Bore: a usually cylindrical hole made by or as if by boring

And that the bore may contain components and still (penetrates through the body holding the lens and fibers) be arranged to penetrate meet the limitations of the claims as currently presented.

In regard to the argument that Windross is directed to a different field of invention, the examiner maintains that inventions dealing with fiber optics and illumination are within the field of the presently claimed invention.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See In re McLaughlin, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Allowable Subject Matter

7. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2, prior art fails to teach or make obvious the line light irradiation device of claim 1, wherein each light emitting part is arranged on a holding body so that the optical axis of the light irradiated from each light emitting part is arranged radially viewed from the above mentioned direction of the line.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Groullimund et al. (US 5,432,600 A) and Armitage (US 5,260,766 A) teach inspecting apparatus incorporating optical fibers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Zettl whose telephone number is 571-272-6007. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandy O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MZ
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